

REMARKS

The Final Office Action mailed November 29, 2006 considered and rejected claims 1-40, 42-46 and 48-52. Claims 1-22, 26, 28-40, 42-44, 46, and 48-52 were rejected under 35 U.S.C. 102(b) as being anticipated by Hsu et al. (US 5,581,691) hereinafter *Hsu*. Claims 23-25, 27, and 45 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Hsu*.

By this amendment, claims 1, 2, and 5-7 are amended and claims 53-60 are new.¹ Claims 3, 4, and 11-52 are cancelled. Accordingly, claims 1, 2, 5-10, and 53-61 are pending, of which claims 1, 53, and 61 are the independent claims at issue.

Applicants respectfully submit that the cited art of record does not anticipate or otherwise render the amended claims unpatentable for at least the reason that the cited art does not disclose, suggest, or enable each and every element of these claims.

Hsu describes a workflow management system and method. It is a premise of *Hsu* that an important consideration in any activity management system is recovering from system failure. The activity management system must be able to automatically recover from virtually any system failure once the system is brought back online. (Col. 1, ll. 55-60). As such, the invention is a workflow management system and method for executing and tracking the progress of long running work flows, and for recovering from system failures during the execution of long running workflows. (Col. 2, ll. 64-67).

In *Hsu* long running workflows are represented in a flow description database as a set of steps with data flows there between. Each step executes as an application program and is treated as an individual computation. Data flows between steps are represented as arcs between the steps. (Col. 3, ll. 1-8, Col. 5, ll. 21-26, and Figure 3). Workflows can be defined with clear criteria for when each step or subflow is ready to begin execution, what inputs it needs, where the inputs come from, and where the outputs should be sent. (Col. 3, ll. 47-50). Each step is modeled having several components each of which includes substeps. (Col. 5, l. 59 – Col. 6, l. 8 and Figure 4).

¹ Support for the amendments to the claims are found throughout the originally filed specification and previously presented claims, including but not limited to page 10, line 16 - page 11, line 18, page 12, line 18 - page 13, line 5, page 14, lines 20-31, page 15, lines 6-12, page 18, lines 5-28, and page 20, line 29 – page 22, line 9 and Figures 1, 3, and 7a-7d

A model for each workflow can be stored in a set of tables, called a workflow description database. That is, all relationships between steps of a workflow as well as other execution information are stored in the form of a set of flat database tables. The data in workflow description database can be used to specify business process schemas, somewhat like schemas for a database. (Col. 6, ll. 10-22 and Figure 5). A flow table contains one record for each Flow Type. Each flow type can be instantiated multiple times. (Col. 6, ll. 38-60 and Figure 6).

The Type Ref Table contains a record for every step and flow element in each Flow Type. (Col. 6, ll. 61-62). The fields in each Type Ref Table record include a compensation routine pointer 232 and a Timeout Duration 237. The compensation routine pointer references a "compensation routine" that can be called when an exception (such as a timeout) occurs during execution of a step or flow. (Col. 7, ll. 3-11). The Timeout Duration 237 indicates the maximum amount of time that should be allocated for execution of the associated flow or step. (Col. 7, ll. 54-56).

Each workflow is also subject to input conditions that specify when one or more sets of input event signals are sufficient to initiate execution of a step defined in the workflow database. (Col. 8, ll. 34-37 and Col. 9, ll. 11-35). Thus, during execution of a workflow, each step and flow downstream from the initial steps are created or instantiated only when a sufficient set of input event signals are present. (Col. 11, ll. 55-57).

A flow controller can be used to control workflow execution. (Col. 11, ll. 33-52 and Figure 13). A process T1 creates new instances of flows and steps whenever event signals are sufficient to meet input conditions. (Col. 12, ll. 27-30). T1 processes events from an FIE queue. Input data events can include event signals generated by previously executed steps or externally originated event signals. Externally originated event signals, typically represent a request to start a new workflow and are inserted by a process called the post server. (Col. 12, ll. 1-7). Input event signals can include a Timestamp 530 indicating when the event was generated. (Col. 12, ll. 46-47).

A process T2 performs input data mapping and resource mapping. (Col. 13, ll. 9-10). For control steps T2 queues a record indicating that the control is ready for processing by the T3 process and adds a record to a Work To Do List. (Col. 13, ll. 17-23 and Figure 16). Adding a record to the Work To Do List notifies T3 that the control step is ready for processing. The data structure of records in the Work To Do List include State Field 584, Time Setting 586 and

Accumulated Time 588. State Field 584 indicates the status. Time setting 586 is equal to the time at which the step will timeout if the execution of the step is not yet complete. Time setting 586 is computed at T as the starting time for the step plus the Timeout Duration (237) for the step. (Col. 13, ll. 30-38). T2 also monitors timeout limits for each step and flow instance.

Applicants submit that *Hsu* considers a timeout an exception during execution of a workflow. In response to an exception, a compensation routine is called. Process T2 and/or T3 monitor timeout limits for each step. As such, Applicants detection of a timeout would cause T2 and/or T3 to call compensation routine but not necessarily cause data to be persisted from memory to a storage medium. Further, as previously described, a step is not instantiated until an appropriate combination of inputs is available. (Col. 9, ll. 33-35). Thus, *Hsu* does not temporarily free up memory for use by other workflow items when waiting for an external event to occur because a step is not even instantiated until appropriate input is already available. Based on the instantiation requirements, Applicants submit that timeout monitoring is monitoring of the actual processing of the appropriate input values. If the input values are not processed before the Time Setting (584), a compensation routine can be called. Further, there no description that an entire workflow is moved from system memory in response to a timeout at a workflow item.

Accordingly, the cited art fails to teach or suggest, either singly or in combination:

initiating a workflow action, from among the plurality of workflow actions, into system memory of the computer system prior to occurrence of an external event on which the workflow action depends, the workflow action configured to idle until the external event occurs, the workflow action including a latency attribute, the latency attribute representing an estimated wait time indicating how long the workflow action is expected to idle waiting for the external event to occur;

accessing a latency threshold, the latency threshold defining a maximum amount of time the computer system is to allow a workflow action to remain idle in system memory waiting for an external event to occur;

...

determining that the estimated wait time for the workflow action exceeds the maximum amount of time the computer system is to allow a workflow action

to remain idle in system memory waiting for an external event to occur based on the comparison;

in response to the determination, freeing up the memory allocated to the schedule for use by other workflow actions,

...

as recited in claim 1, when viewed in combination with the other limitations of claim 1. For at least this reason, claim 1 patentably defines over the art of record. For at least this same reason claim 53 also patentably defines over the art of record. Since claims 2, 5-10, and 54-60 depend from either claim 1 or claim 153, claims 2, 5-10, and 54-60 patentably define over the art of record at least for the same reason as their corresponding base claim.

However, many of the dependent claims also independently distinguish over the art of record. For example, the cited art fails to teach or suggest the limitations of claims 5, 6, 55, and 56.

In view of the foregoing, Applicant respectfully submits that the other rejections to the claims are now moot and do not, therefore, need to be addressed individually at this time. It will be appreciated, however, that this should not be construed as Applicant acquiescing to any of the purported teachings or assertions made in the last action regarding the cited art or the pending application, including any official notice. Instead, Applicant reserves the right to challenge any of the purported teachings or assertions made in the last action at any appropriate time in the future, should the need arise. Furthermore, to the extent that the Examiner has relied on any Official Notice, explicitly or implicitly, Applicant specifically requests that the Examiner provide references supporting the teachings officially noticed, as well as the required reason why one of ordinary skill in the art would have modified the cited references in the manner officially noticed.²

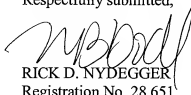
In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney at (801) 533-9800.

² Instead, Applicant reserves the right to challenge any of the purported teachings or assertions made in the last action at any appropriate time in the future, should the need arise. Furthermore, to the extent that the Examiner has relied on any Official Notice, explicitly or implicitly, Applicant specifically requests that the Examiner provide references supporting any official notice taken. Furthermore, although the prior art status of the cited art is not being challenged at this time, Applicant reserves the right to challenge the prior art status of the cited art at any appropriate time, should it arise. Accordingly, any arguments and amendments made herein should not be construed as acquiescing to any prior art status of the cited art.

The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to Deposit Account No. 23-3178: (1) any filing fees required under 37 CFR § 1.16; and/or (2) any patent application and reexamination processing fees under 37 CFR § 1.17; and/or (3) any post issuance fees under 37 CFR § 1.20. In addition, if any additional extension of time is required, which has not otherwise been requested, please consider this a petition therefore and charge any additional fees that may be required to Deposit Account No. 23-3178.

Dated this 11th day of December, 2010.

Respectfully submitted,



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